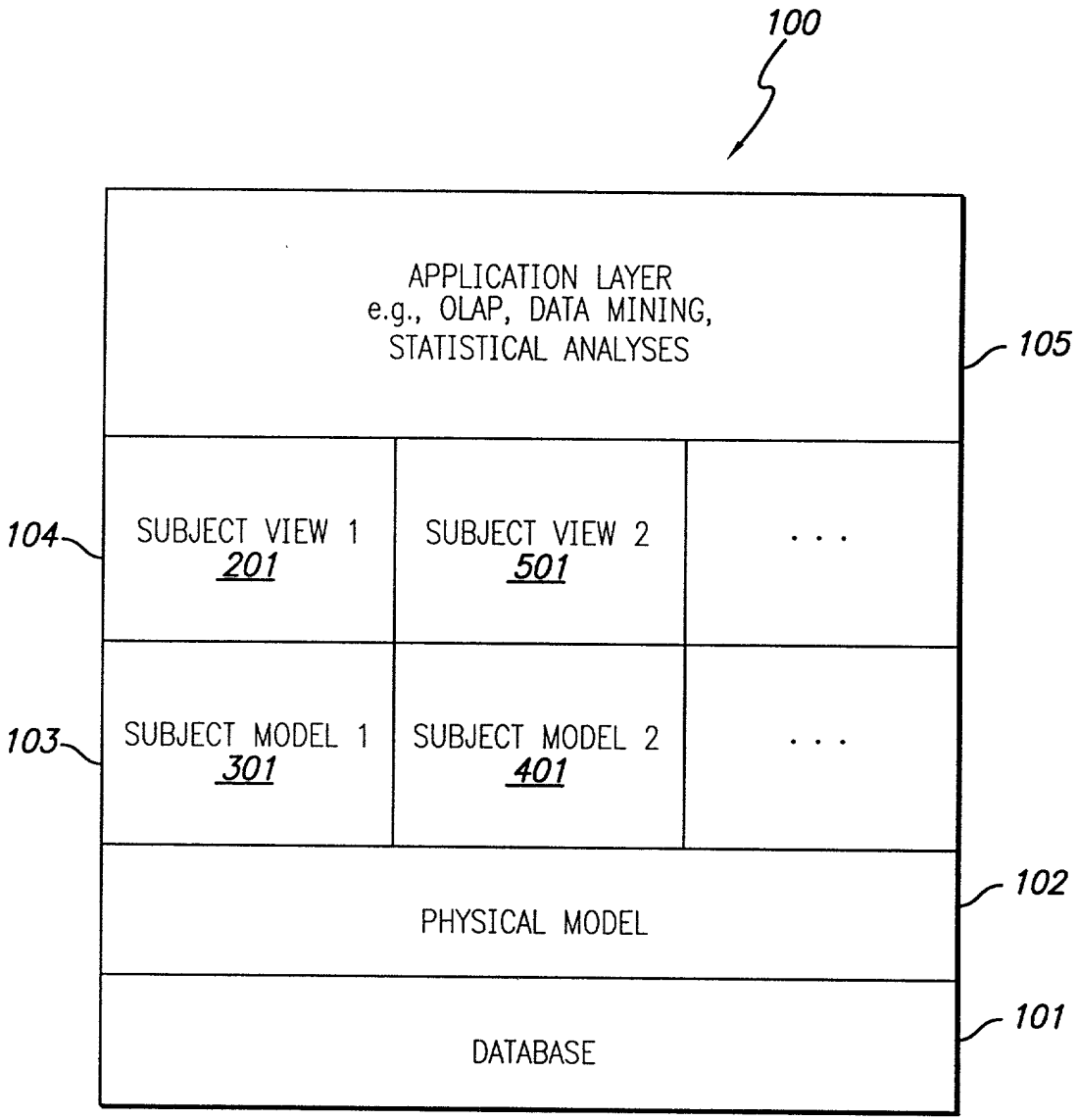
100
APPLICATION LAYER
e.g., OLAP, DATA MINING,
STATISTICAL ANALYSES
105
104
SUBJECT VIEW 1
201
SUBJECT VIEW 2
501
. . .
103
SUBJECT MODEL 1
301
SUBJECT MODEL 2
401
. . .
PHYSICAL MODEL
102
DATABASE
101

FIG. 1

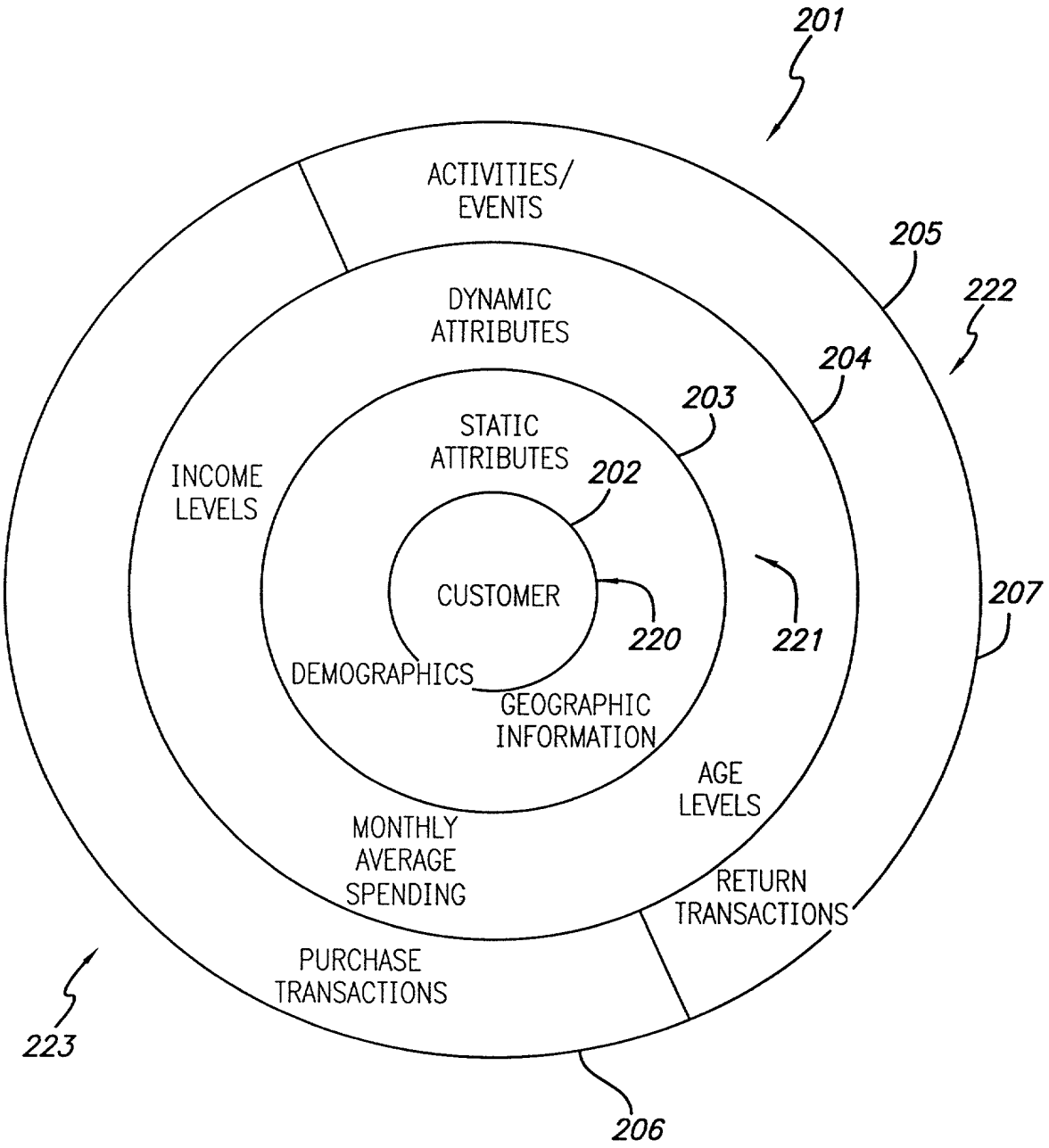
201
ACTIVITIES/
EVENTS
205
222
DYNAMIC
ATTRIBUTES
204
203
STATIC
ATTRIBUTES
202
INCOME
LEVELS
CUSTOMER
220
221
207
DEMOGRAPHICS
GEOGRAPHIC
INFORMATION
AGE
LEVELS
MONTHLY
AVERAGE
SPENDING
RETURN
TRANSACTIONS
PURCHASE
TRANSACTIONS
223
206

FIG. 2

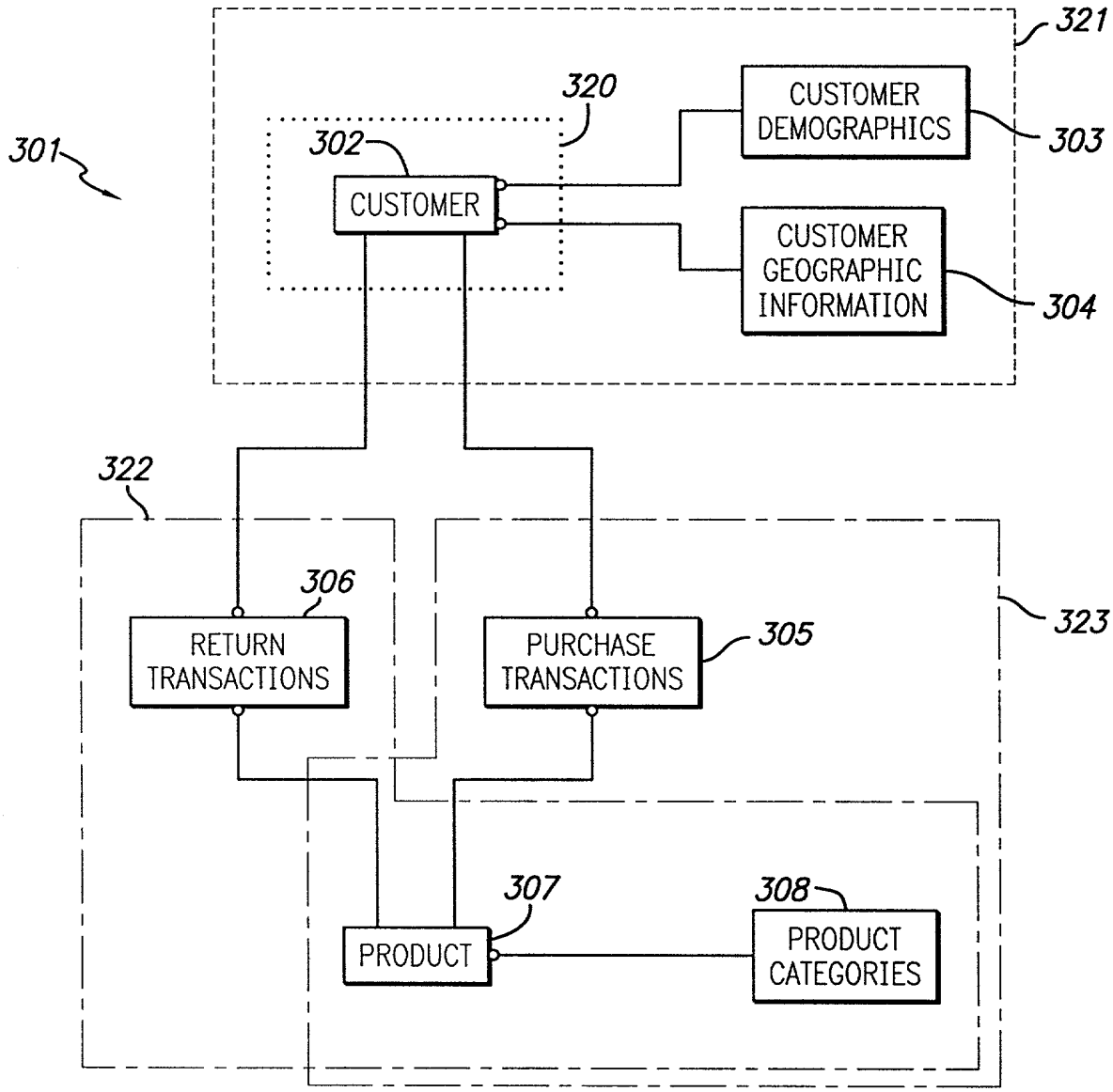
321
320
CUSTOMER DEMOGRAPHICS
303
301
302
CUSTOMER
CUSTOMER GEOGRAPHIC INFORMATION
304
322
306
323
RETURN TRANSACTIONS
PURCHASE TRANSACTIONS
305
307
308
PRODUCT
PRODUCT CATEGORIES

FIG. 3

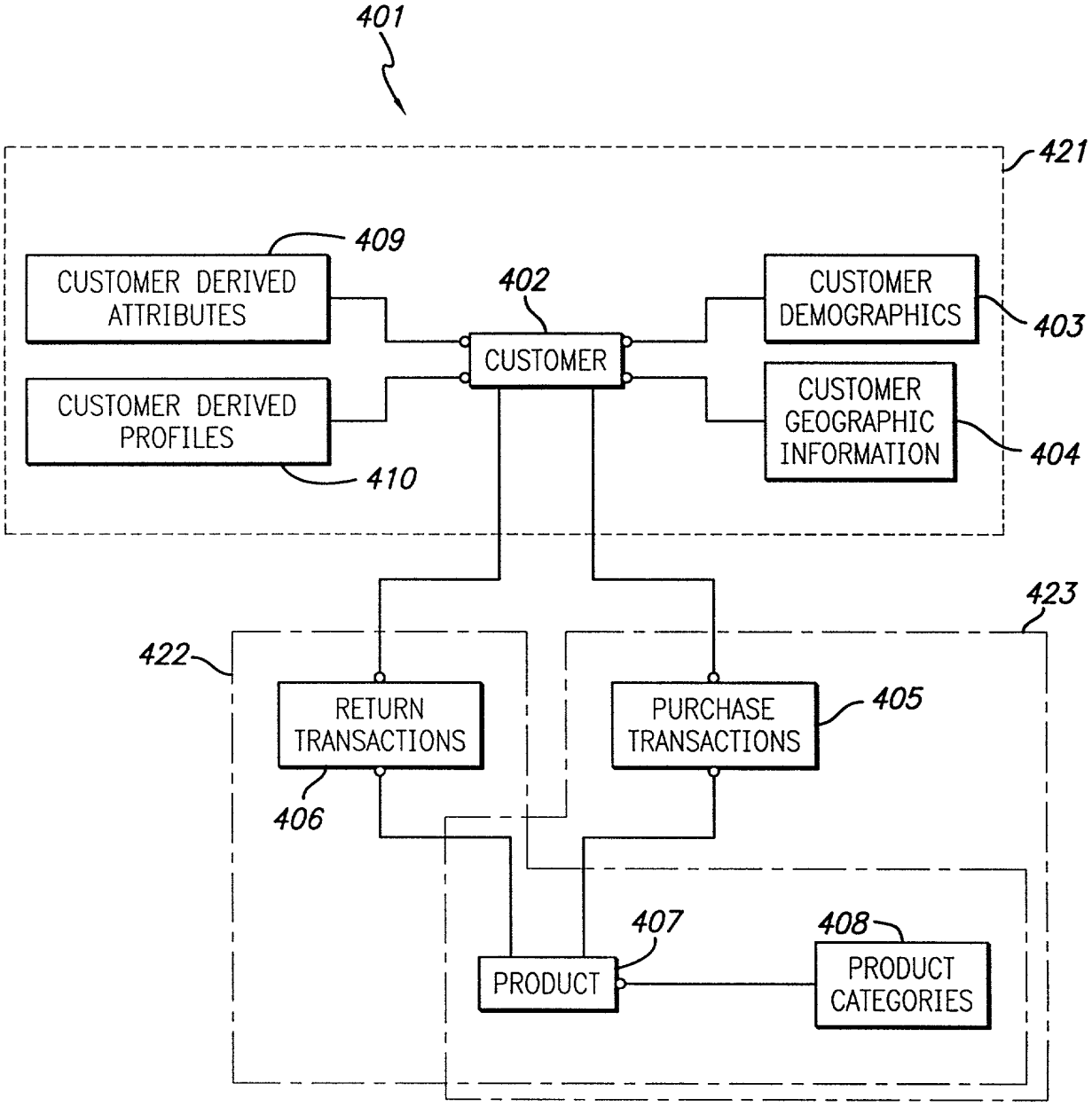
401
421
409
CUSTOMER DERIVED ATTRIBUTES
402
CUSTOMER
CUSTOMER DEMOGRAPHICS
403
CUSTOMER DERIVED PROFILES
410
CUSTOMER GEOGRAPHIC INFORMATION
404
423
422
RETURN TRANSACTIONS
406
PURCHASE TRANSACTIONS
405
407
PRODUCT
408
PRODUCT CATEGORIES

FIG. 4

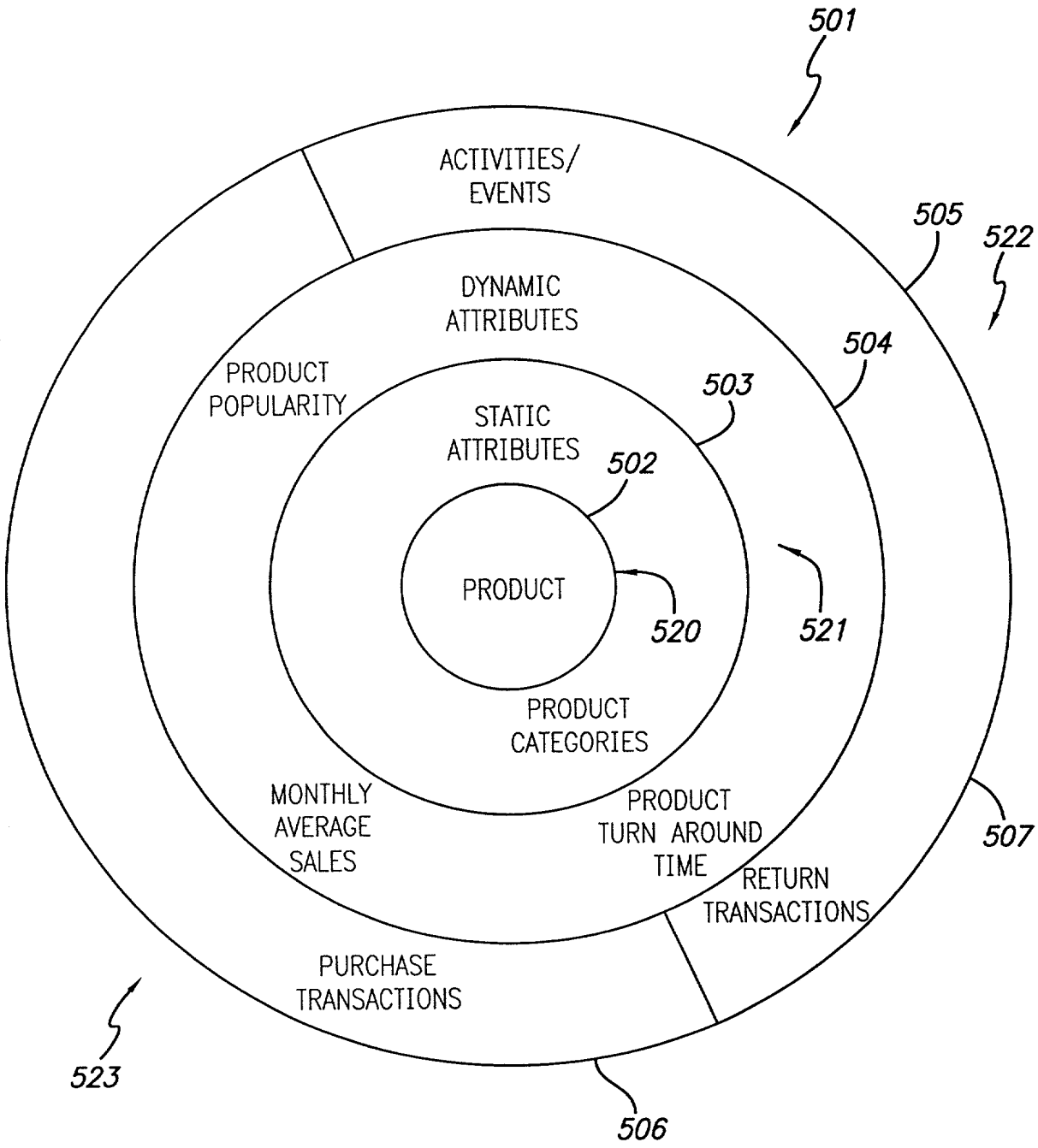
501
ACTIVITIES/
EVENTS
505
522
DYNAMIC
ATTRIBUTES
504
PRODUCT
POPULARITY
503
STATIC
ATTRIBUTES
502
PRODUCT
520
521
PRODUCT
CATEGORIES
MONTHLY
AVERAGE
SALES
PRODUCT
TURN AROUND
TIME
RETURN
TRANSACTIONS
507
PURCHASE
TRANSACTIONS
523
506

FIG. 5

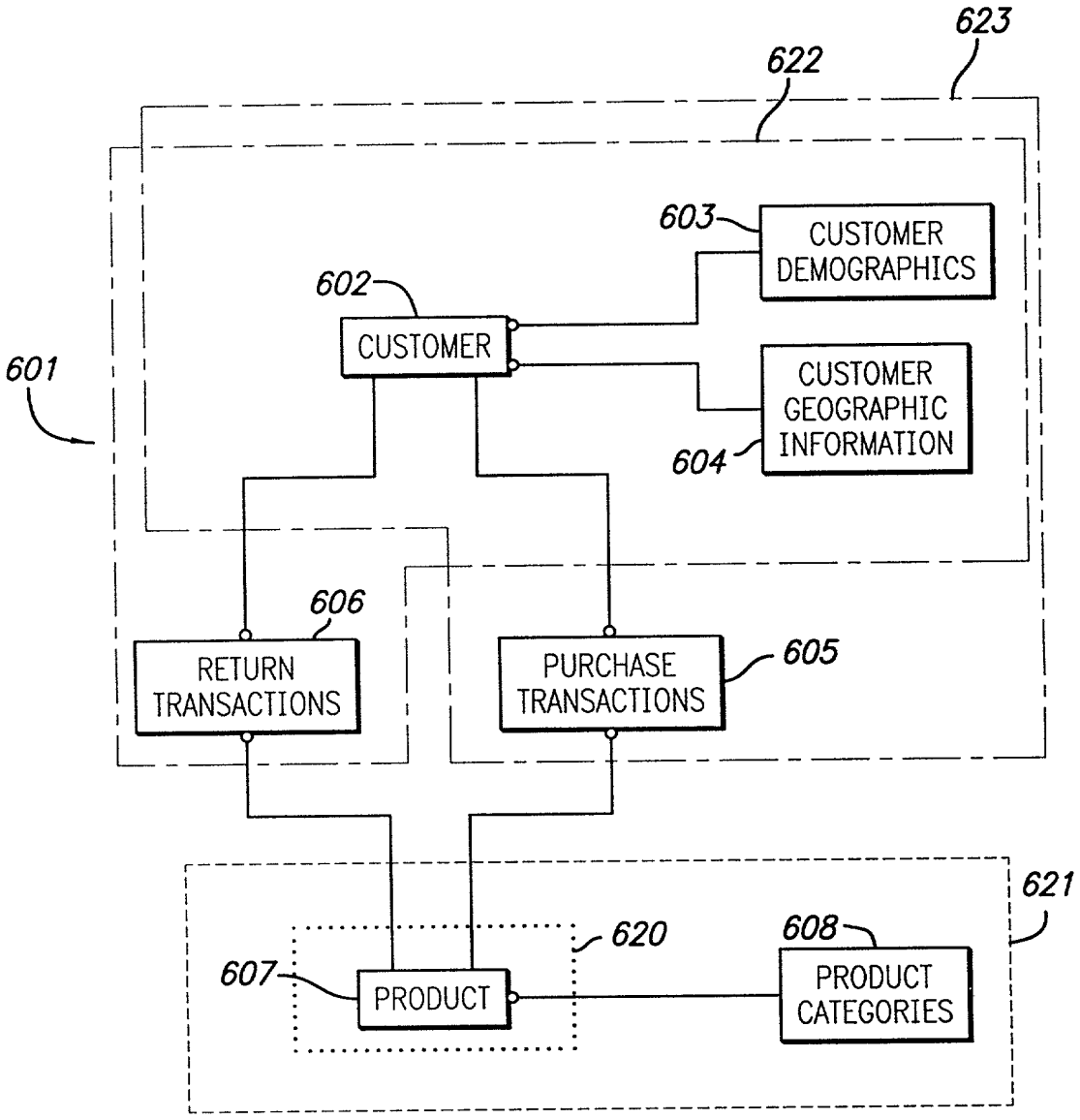
623
622
603
CUSTOMER DEMOGRAPHICS
602
CUSTOMER
601
CUSTOMER GEOGRAPHIC INFORMATION
604
606
RETURN TRANSACTIONS
PURCHASE TRANSACTIONS
605
621
620
608
607
PRODUCT
PRODUCT CATEGORIES

FIG. 6

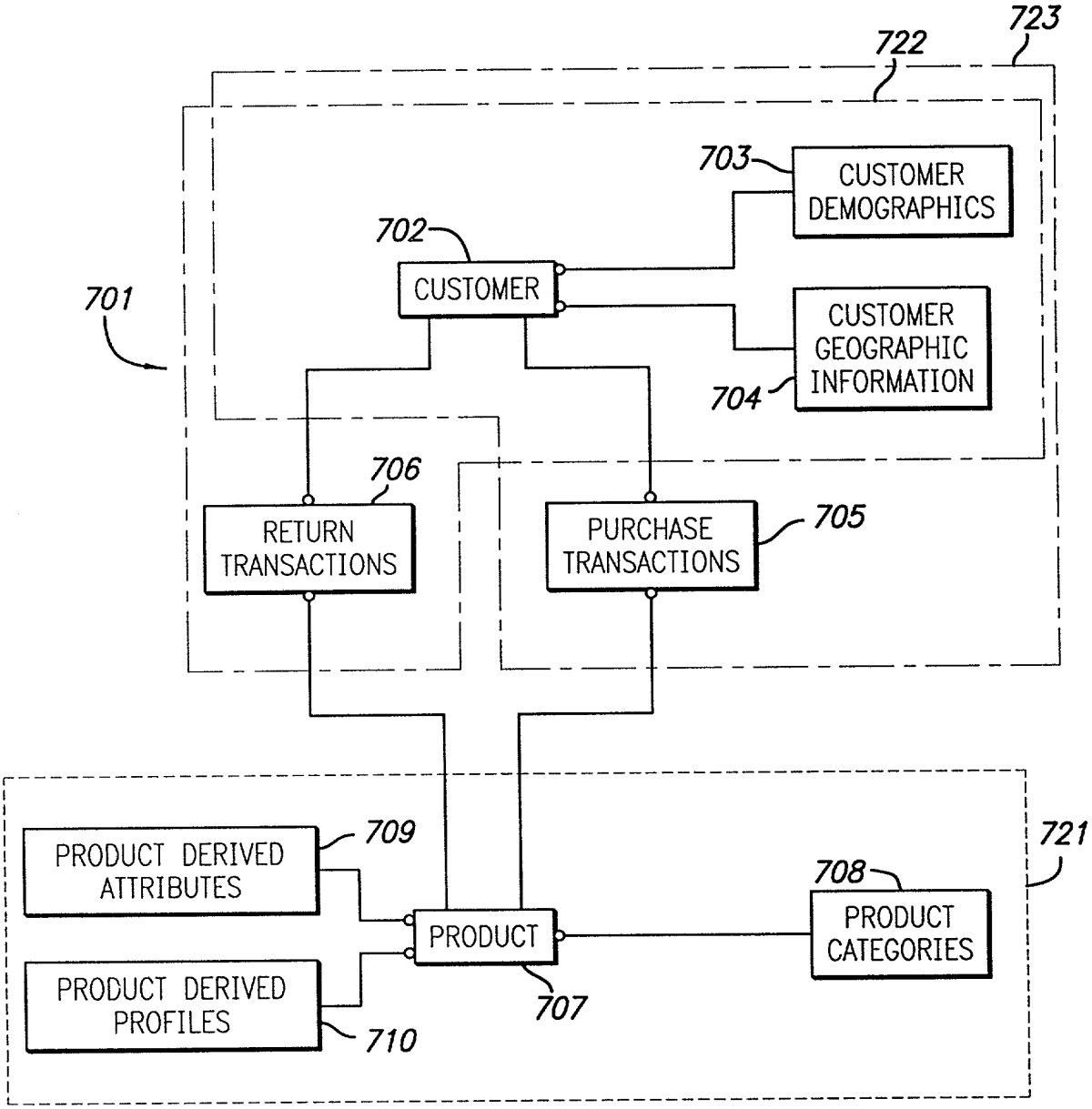
723
722
703
CUSTOMER DEMOGRAPHICS
702
CUSTOMER
701
CUSTOMER GEOGRAPHIC INFORMATION
704
706
RETURN TRANSACTIONS
PURCHASE TRANSACTIONS
705
709
PRODUCT DERIVED ATTRIBUTES
721
708
PRODUCT CATEGORIES
PRODUCT
PRODUCT DERIVED PROFILES
707
710

FIG. 7

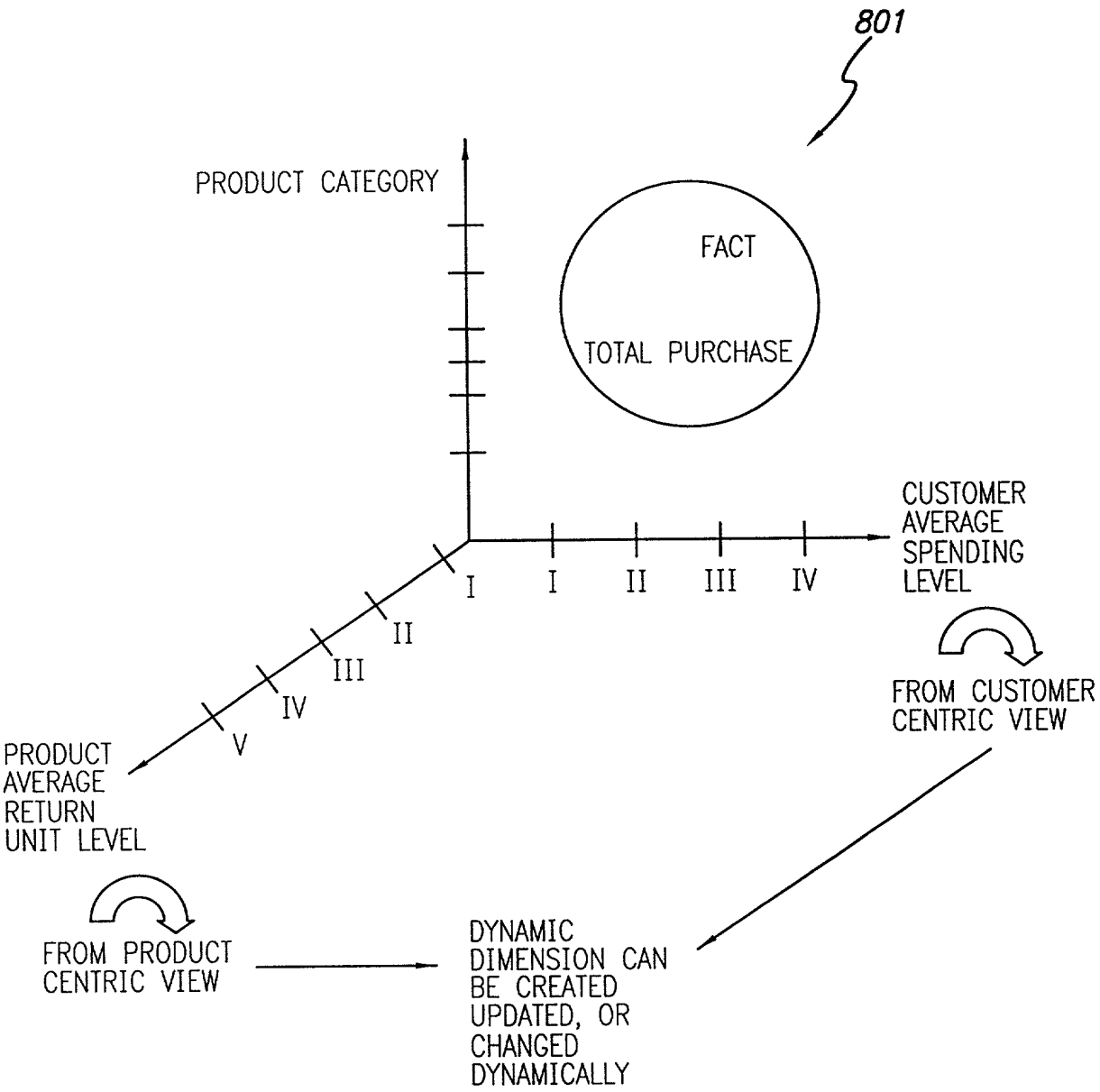
801
PRODUCT CATEGORY
FACT
TOTAL PURCHASE
CUSTOMER AVERAGE SPENDING LEVEL
I
I
II
III
IV
FROM CUSTOMER CENTRIC VIEW
PRODUCT AVERAGE RETURN UNIT LEVEL
II
III
IV
V
FROM PRODUCT CENTRIC VIEW
DYNAMIC DIMENSION CAN BE CREATED UPDATED, OR CHANGED DYNAMICALLY

FIG. 8

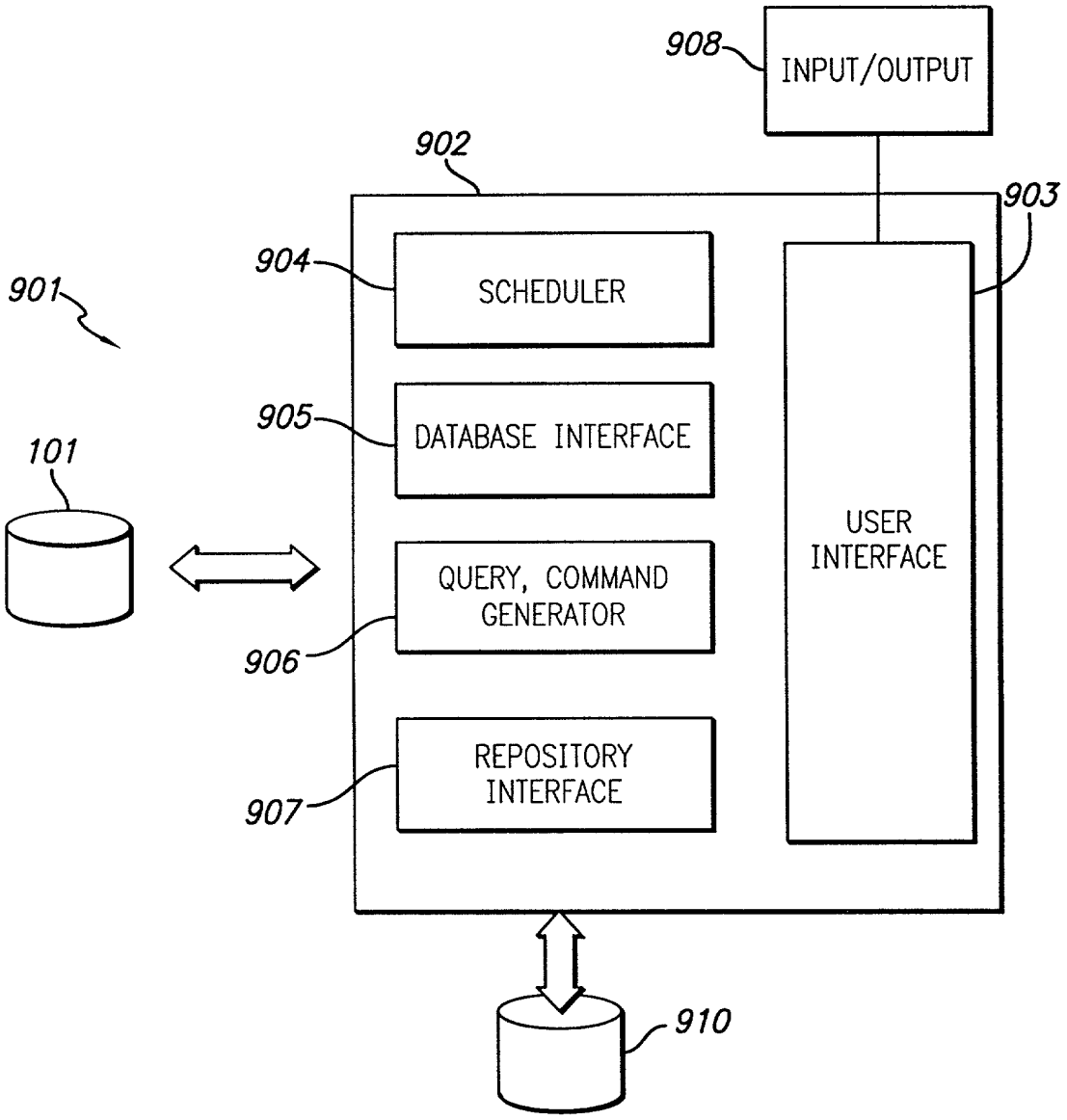
908
INPUT/OUTPUT
902
903
904
SCHEDULER
901
905
DATABASE INTERFACE
101
USER INTERFACE
QUERY, COMMAND GENERATOR
906
REPOSITORY INTERFACE
907
910

FIG. 9

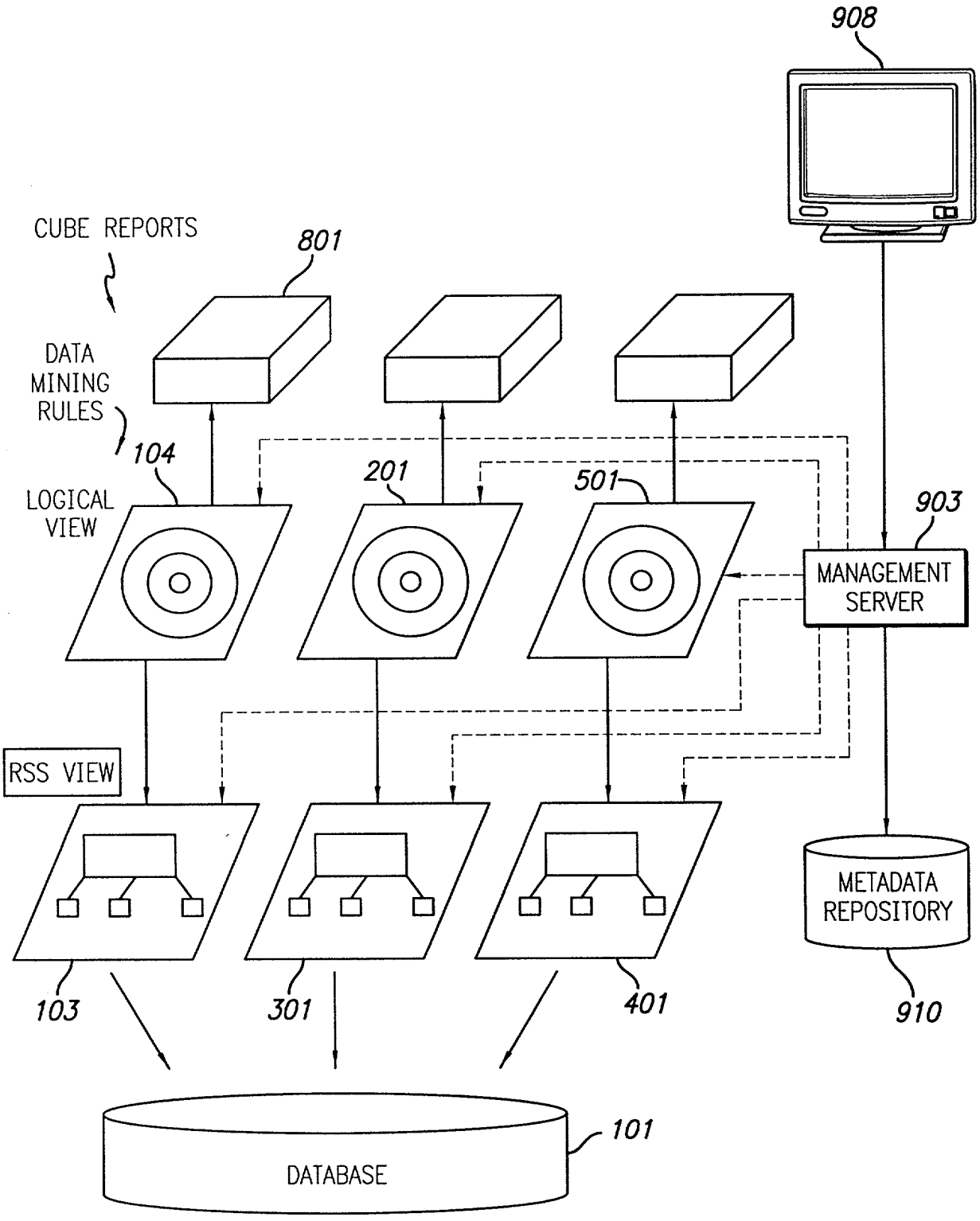
908
CUBE REPORTS
801
DATA MINING RULES
104
LOGICAL VIEW
201
501
903
MANAGEMENT SERVER
RSS VIEW
METADATA REPOSITORY
103
301
401
910
101
DATABASE

FIG. 10

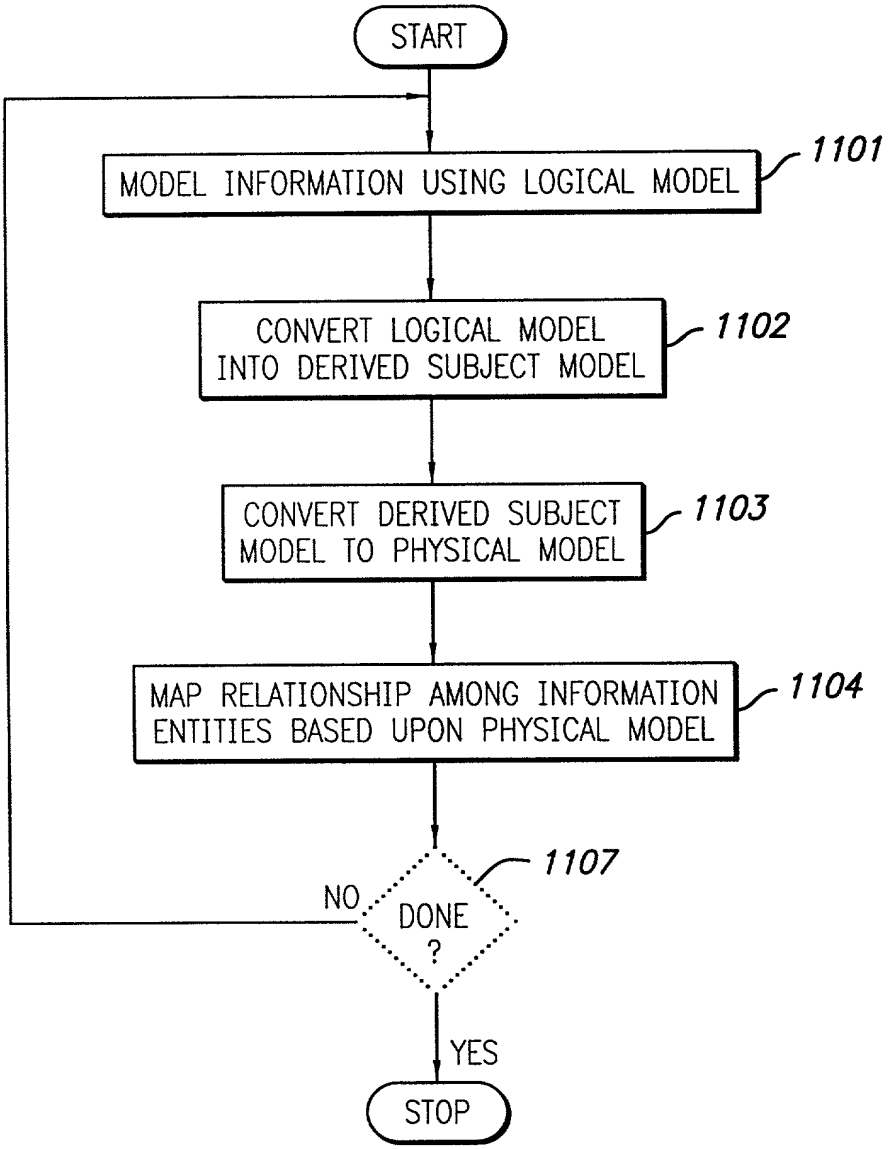
START
MODEL INFORMATION USING LOGICAL MODEL
1101
CONVERT LOGICAL MODEL INTO DERIVED SUBJECT MODEL
1102
CONVERT DERIVED SUBJECT MODEL TO PHYSICAL MODEL
1103
MAP RELATIONSHIP AMONG INFORMATION ENTITIES BASED UPON PHYSICAL MODEL
1104
1107
NO
DONE ?
YES
STOP

FIG. 11A

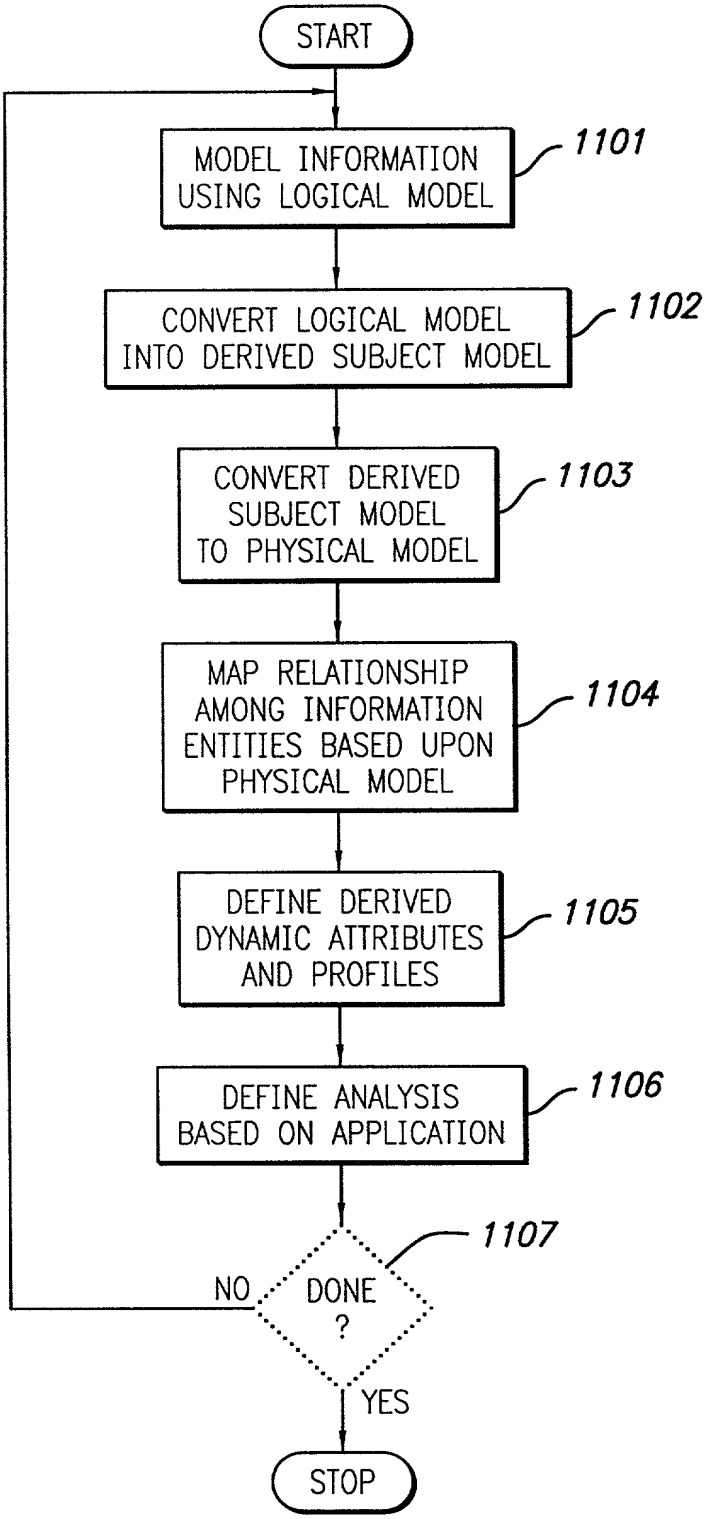
START
MODEL INFORMATION USING LOGICAL MODEL
1101
CONVERT LOGICAL MODEL INTO DERIVED SUBJECT MODEL
1102
CONVERT DERIVED SUBJECT MODEL TO PHYSICAL MODEL
1103
MAP RELATIONSHIP AMONG INFORMATION ENTITIES BASED UPON PHYSICAL MODEL
1104
DEFINE DERIVED DYNAMIC ATTRIBUTES AND PROFILES
1105
DEFINE ANALYSIS BASED ON APPLICATION
1106
1107
NO
DONE ?
YES
STOP

FIG. 11B

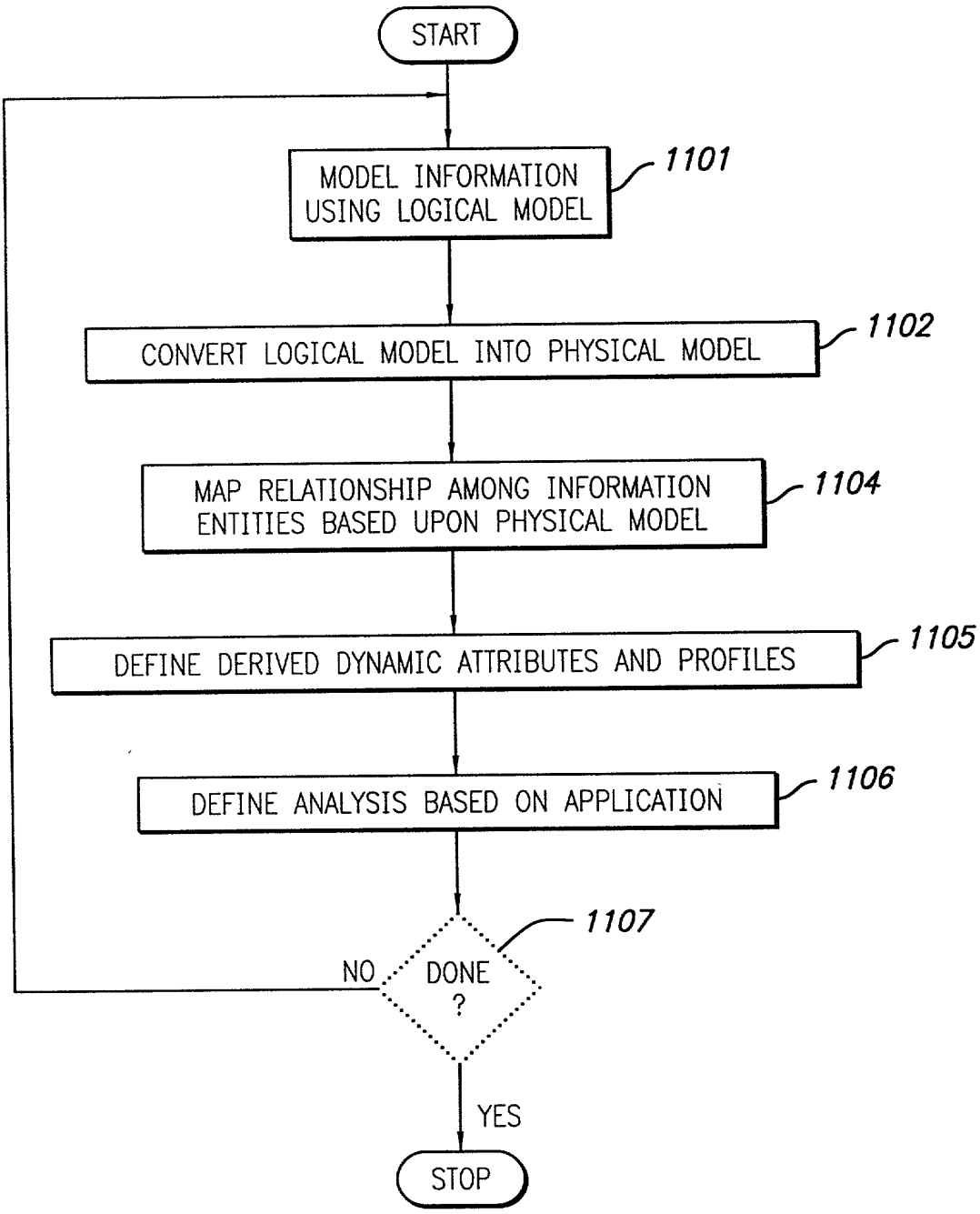
START
MODEL INFORMATION USING LOGICAL MODEL
1101
CONVERT LOGICAL MODEL INTO PHYSICAL MODEL
1102
MAP RELATIONSHIP AMONG INFORMATION ENTITIES BASED UPON PHYSICAL MODEL
1104
DEFINE DERIVED DYNAMIC ATTRIBUTES AND PROFILES
1105
DEFINE ANALYSIS BASED ON APPLICATION
1106
DONE ?
1107
NO
YES
STOP

FIG. 11C

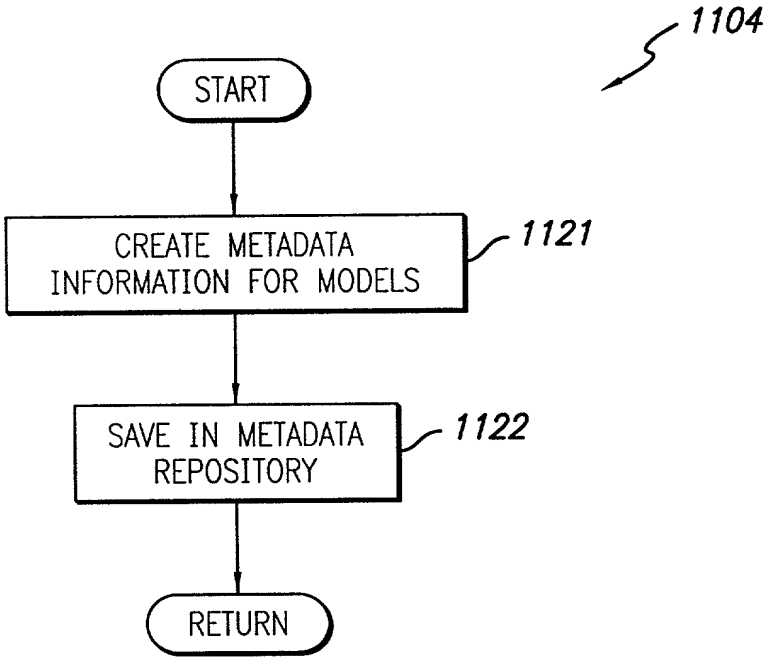
1104
START
CREATE METADATA INFORMATION FOR MODELS
1121
SAVE IN METADATA REPOSITORY
1122
RETURN

FIG. 11D

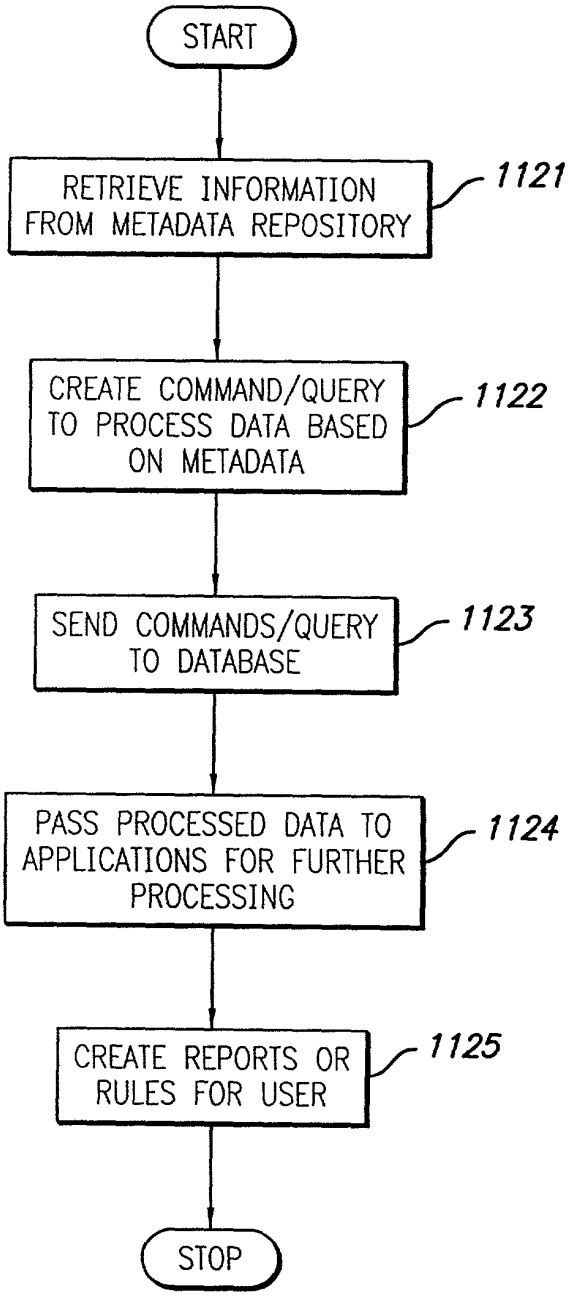
START
RETRIEVE INFORMATION FROM METADATA REPOSITORY
1121
CREATE COMMAND/QUERY TO PROCESS DATA BASED ON METADATA
1122
SEND COMMANDS/QUERY TO DATABASE
1123
PASS PROCESSED DATA TO APPLICATIONS FOR FURTHER PROCESSING
1124
CREATE REPORTS OR RULES FOR USER
1125
STOP

FIG. 11E

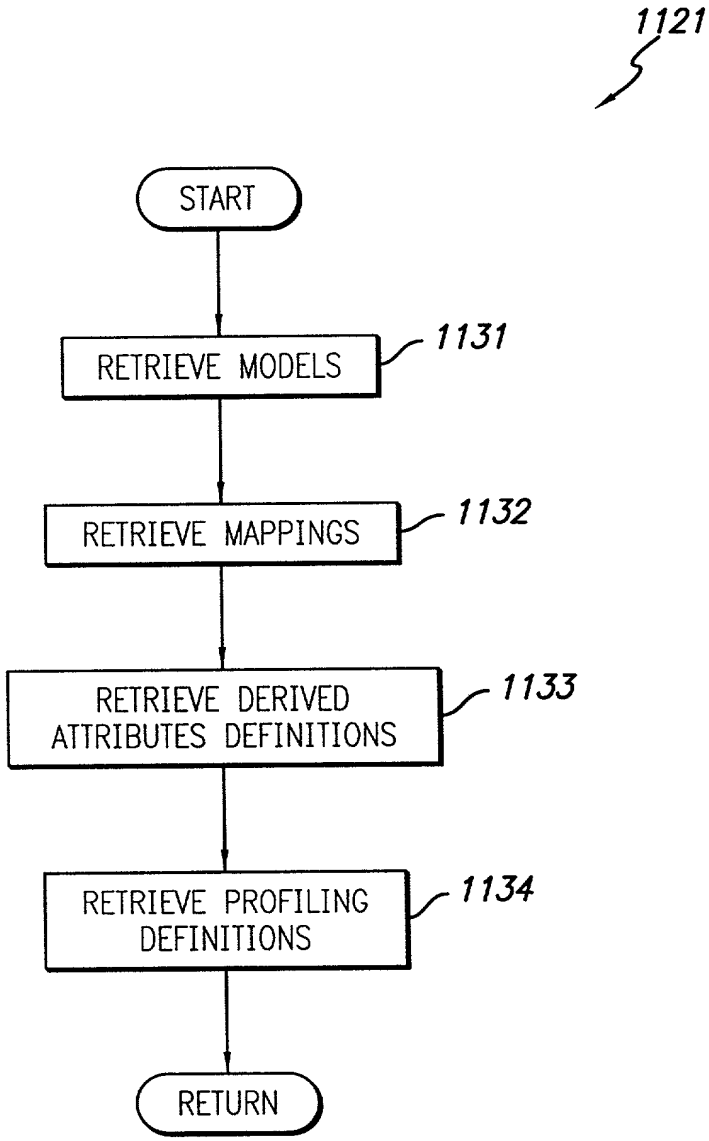
1121
START
RETRIEVE MODELS
1131
RETRIEVE MAPPINGS
1132
RETRIEVE DERIVED ATTRIBUTES DEFINITIONS
1133
RETRIEVE PROFILING DEFINITIONS
1134
RETURN

FIG. 11F

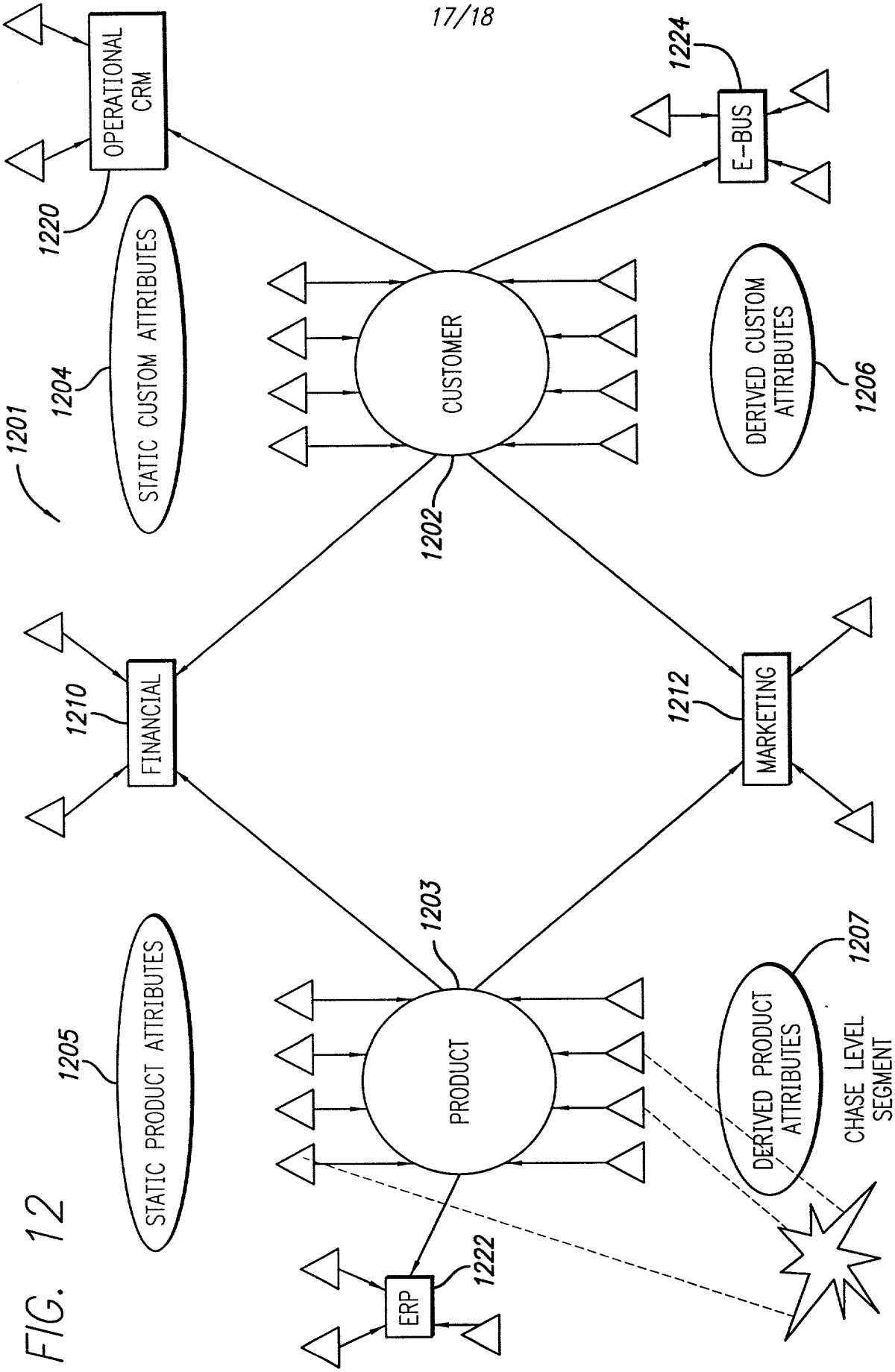

FIG. 12

Patent Application Publication

PD-P04501 4/26/2005
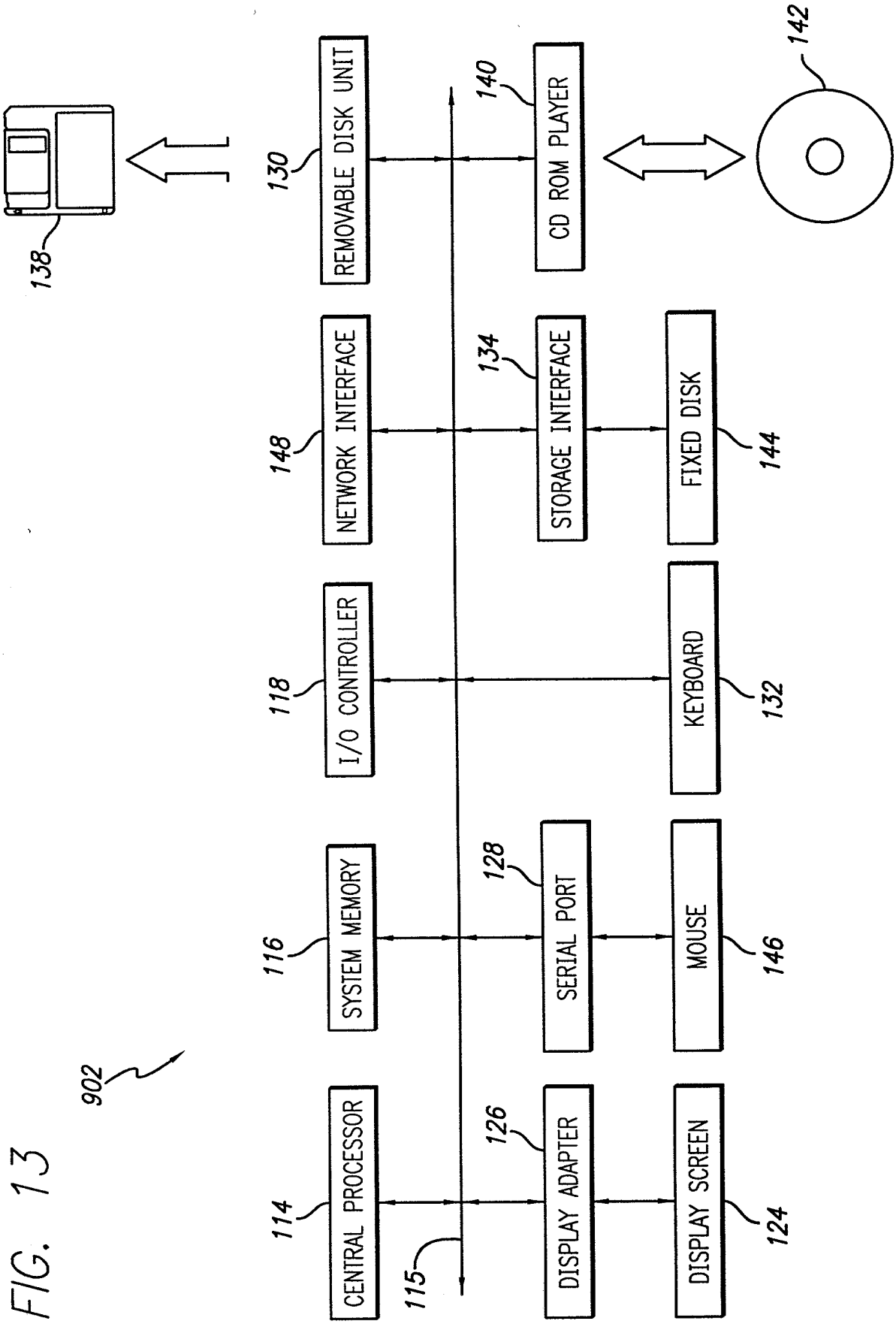
FIG. 13